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The relation of soil moisture to transpiration and to economy in the use of water is also shown by the investigations of YUNCKER,[13] who, using the wax seal method and weighing the sealed pots, has studied the comparative rates of transpiration of young plants of *Zea Mays* growing in soil with 3 different soil moisture contents, all somewhat above the wilting coefficient and showing respectively 25, 45, and 65 per cent of possible saturation. The rate of transpiration and the water requirement for periods up to 1320 hours was least for the driest cultures, which, however, seem to have had no deficiency in water supply, and most for those with the highest soil moisture content. Thus among other things it appears that the experiment demonstrated that the amount of dry matter formed was not at all proportional to transpiration.—GEO. D. FULLER.

Taxonomic notes.—LANGE,[14] in the second part of his studies on the agarics of Denmark, has published his results with *Amanita*, *Lepiota*, and *Coprinus*. The first part, published in 1914, contained a general introduction and an account of *Mycena*. The genus *Amanita* includes 14 Danish species; *Lepiota* 31 species, 1 of which is new; and *Coprinus* 33 species, 3 of which are new. The presentation of each genus is preceded by a full discussion of its characters and an analytical key.

MACBRIDE,[15] in presenting "The true Mertensias of western North America," recognizes 32 species, 4 of which are described as new. GRAY'S *Synoptical Flora* (1886) contains 7 species, 2 of which are restricted to the Atlantic states. Since that time, 74 species have been proposed. In a "Revision of the genus *Oreocarya*," 45 species are recognized, 4 of which are described as new. In "Notes on certain Borraginaceae," *Amblynotopsis* is proposed as a new genus (including 4 species transferred from *Krynitzkia*), and new species are also described in *Lappula* (2), *Cryptantha* (2), *Amsinckia*, *Mertensia*, and *Lithospermum*.

MOORE[16] has described 2 new genera: *Capitanopsis* (Labiatae) from Madagascar, and *Megalostylis* (Euphorbiaceae) from Peru or Brazil (upper Amazon region). He also describes 13 new species from Africa.

OKAMURA,[17] in his second contribution to the bryophytic flora of Japan, describes a new liverwort and 29 new species of mosses well distributed generically.

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[13] YUNCKER, T. G., A study of the relation of soil moisture to transpiration and photosynthesis in the corn plant. Plant World **20**:151–161. 1916.

[14] LANGE, JAKOB E., Studies in the agarics of Denmark. Part II. Dansk. Bot. Arkiv. **2**:no. 3. pp. 53. *pls. 2.* 1915.

[15] MACBRIDE, J. FRANCIS, Contrib. Gray Herb. no. 48, pp. 58. 1916.

[16] MOORE, SPENCER LEM., Alabastra diversa. XXVI. Jour. Botany **54**:249–257. 1916.

[17] OKAMURA, SHUTAI, Contributiones novae ad floram bryophyton Japonicam. Pars secunda. Jour. Coll. Sci. Tokyo **38**:no. 4. pp. 100. *figs. 42.* 1916.

OVERHOLTS[18] has monographed the Polyporaceae of the central states, including the states extending from Ohio to North Dakota and southward to Kentucky and Kansas. He recognizes 132 species in 7 genera, the species of *Poria* and *Merulius* being omitted because "practically nothing is known of them at present." The large genus is *Polyporus*, with 88 species; following it are *Fomes* with 23 species and *Trametes* with 10 species. The keys and contrasted descriptions should make the identification of species comparatively easy. Perhaps the author is to be congratulated that he did not see fit to propose any new species.

SMITH[19] has described 10 new species and 5 new varieties of algae from the lakes of Wisconsin, and also a new genus (*Gloeocystopsis*), which combines the external morphological characters of *Gleocystis* and *Nephrocytium*.

STEVENS,[20] in a synoptical account of the species of *Meliola* occurring in Porto Rico, recognizes 95 species, and describes 62 of them as new.—J. M. C.

Sulphur nutrition.—Although sulphates have little effect on the soil flora, and cannot function therefore as important fertilizers for all crops, the fact that the sulphur content of most soils is rather low, and that certain classes of plants use considerable quantities of sulphur in metabolism, leads to the possibility of sulphur deficiency becoming in certain cases a limiting factor to crop production. HART and TOTTINGHAM[21] have made some greenhouse studies on the relation of elemental sulphur and various sulphates to the nutrition of certain of the Leguminosae, Cruciferae, and Gramineae, groups differing somewhat in their need of sulphur. They find that sulphates may be beneficial to certain crops, even when functioning only as a source of sulphur.

Calcium sulphate in general gave better results than sodium sulphate. It increased the dry weight produced by red clover 23 per cent. With rape the greatest beneficial influence was noted when the calcium sulphate was used in addition to a complete fertilizer. The increase due to the sulphate in this case was 17 per cent. In both plants the roots were much elongated by the sulphate, so that a much larger volume of soil is laid under contribution to the plant, and its ability to withstand drought is much increased. The sulphate therefore not only meets the special needs of these plants for sulphur but improves the general physiological conditions.

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[18] OVERHOLTS, L. O., The Polyporaceae of the middle-western United States. Wash. Univ. Studies **3**:3–98. *pls. 8.* 1915.

[19] SMITH, GILBERT MORGAN, New and interesting algae from the lakes of Wisconsin. Bull. Torr. Bot. Club **43**:471–483. 1916.

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[21] HART, E. B., and TOTTINGHAM, W. E., Relation of sulphur compounds to plant nutrition. Jour. Agric. Research **5**:233–249. 1915.